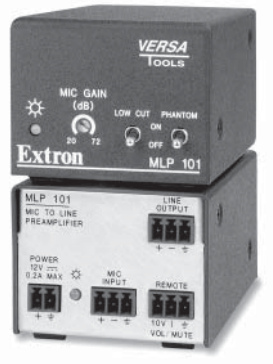
Extron® Electronics

INTERFACING, SWITCHING AND DISTRIBUTION

User's Manual



MLP 101 Series

Microphone to Line Preamplifiers

68-992-01 Rev. **B**
08 06

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Precautions

Safety Instructions • English

This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Consignes de Sécurité • Français

Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).

Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions• Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conserver les instructions• Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Eviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Sicherheitsanleitungen • Deutsch

Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits-und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Instrucciones de seguridad • Español

Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.

Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaucion

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean especificamente recomendados por el fabricante, ya que podrian implicar riesgos.

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Avertissement

Alimentations• Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

Déconnexion de l'alimentation• Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il a danger d'explosion s'll y a remplacment incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un ype equivalent recommande par le constructeur. Mettre au reut les batteries usagees conformement aux instructions du fabricant.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdanschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stomversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegengestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

Schlitze und Öffnungen • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Öbjekten blockiert werden.

Litium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearia ni eliminaria.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalientamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

FCC Class A Notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Note: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.

Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:
Extron Electronics
1001 East Ball Road
Anaheim, CA 92805, USA

Europe, Africa, and the Middle East:
Extron Electronics, Europe
Beeldschermweg 6C
3821 AH Amersfoort
The Netherlands

Asia:
Extron Electronics, Asia
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363

Japan:
Extron Electronics, Japan
Kyodo Building
16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

安全须知 • 中文

这个符号提示用户该设备用户手册中的操作和维护说明。

这个符号警告用户该设备机壳内暴露的危险电压，有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

警告

电源 • 该设备只能使用产品上标明的电源。 设备必用有地线供电系统供电。第三条线（地线）是安设施，不能不用或跳过。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有备后或桌面电源的电源线，或任何接到市电系统电源线。

电源线保护 • 妥善布线， 避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。 设备部没有用户可以更换的零件。为避免出现触电危不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用防止机内敏感元件过热。不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。必须使与厂家推荐的相同或相近型号的电池。按照生产厂的

议处理废弃电池。

Quick Start Guide — MLP 101

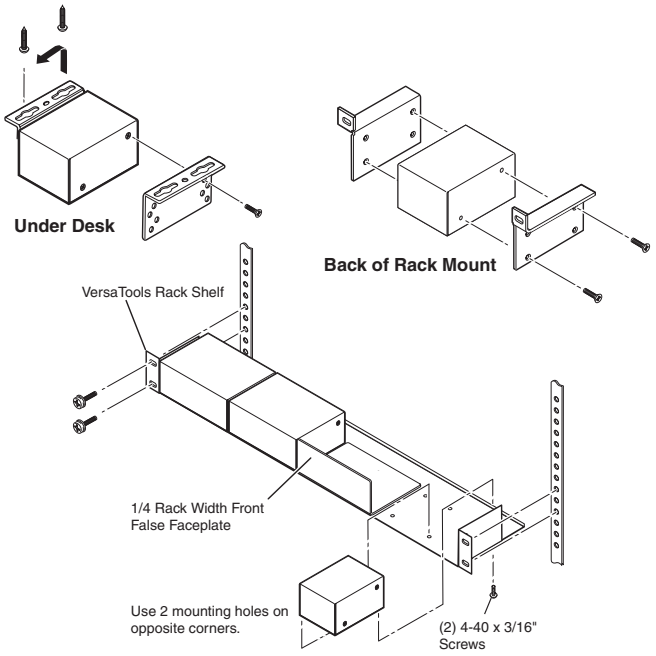
To install and set up the **MLP 101**, follow these steps:

Step 1

Disconnect the MLP 101 from any power source.

Step 2

Mount the MLP 101 on a rack or under a desk as illustrated below.

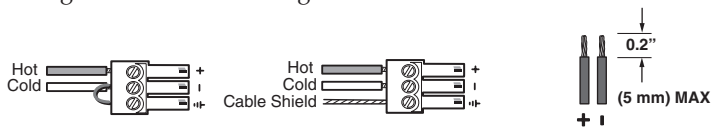


Rack Mount

NOTE *See "Mounting the MLP 101" in chapter 2 for additional information.*

Step 3

Connect the microphone to the MLP 101 mic input. See the diagrams below for wiring instructions.



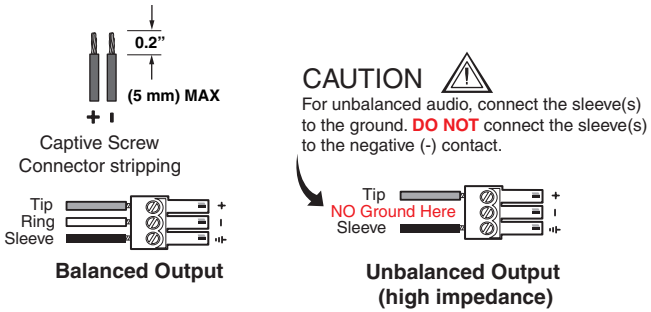
Unbalanced Input (high impedance) **Balanced Input (high impedance)** **Captive Screw Connector stripping**

WARNING *For unbalanced audio, ensure that the Phantom power switch is set to the "off" position.*

Quick Start Guide — MLP 101

Step 4

Connect the destination device to the line output connector.



Step 5

If necessary, **connect an optional Extron VCM 100** remote controller to the remote connector.

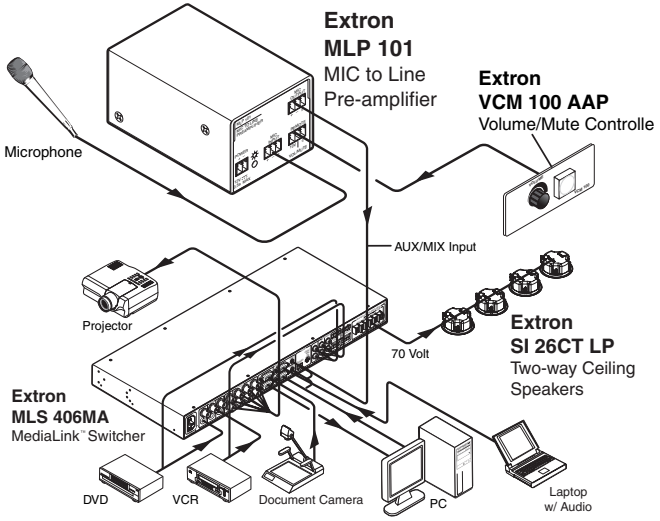
NOTE *See "Remote control options" in chapter 2 for additional information.*

Step 6

Set the Mic Gain, Low Cut, and Phantom power as needed.

NOTE *See "Adjusting the MLP 101" in chapter 2 for detailed instructions.*

See below for a typical setup using the MLP 101 preamplifier.



Typical connection setup

Quick Start Guide — MLP 101 AAP

To install and set up the **MLP 101 AAP**, follow these steps:

Step 1

Disconnect the MLP 101 AAP from any power source.

Step 2

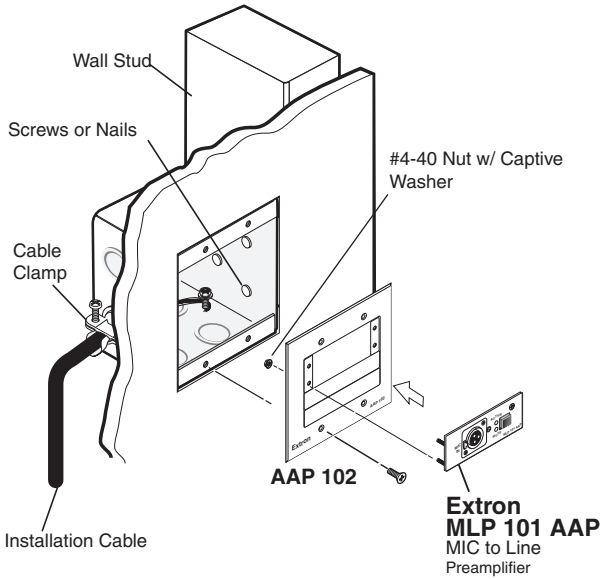
Mount the MLP 101 AAP to a device faceplate or AAP wall plate such as the AAP 102, shown below.

Step 3

Set the Mic Gain, Low Cut, and Phantom power as needed. See "Adjusting the MLP 101 AAP" in chapter 3 for instructions.

Step 4

Install the faceplate or AAP wall plate into a wall and/or architectural solution.



NOTE *See "Mounting the MLP 101 AAP" in chapter 3 for additional information.*

Step 5

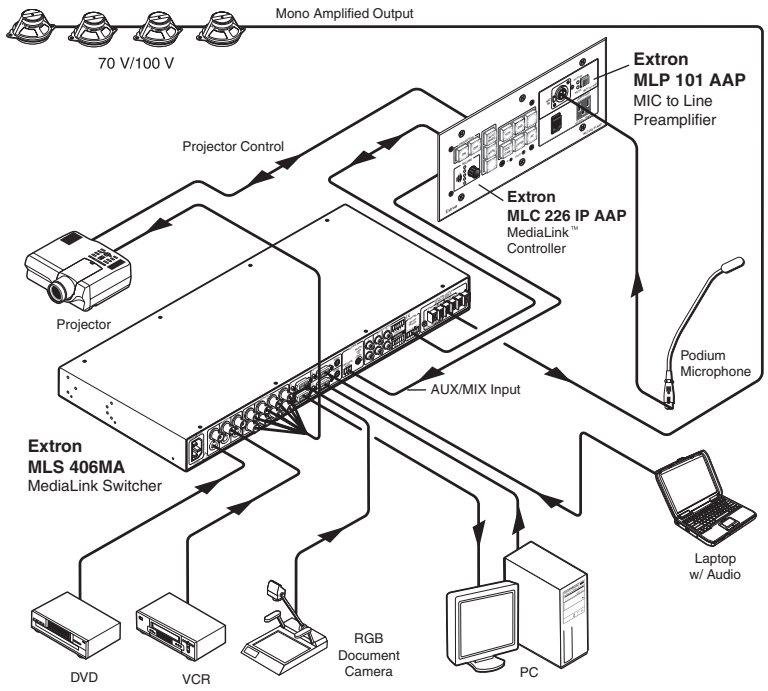
Connect the microphone to the MLP 101 AAP mic input. See Step 3 of this Quick Start Guide (page QS-1) for wiring instructions.

Quick Start Guide — MLP 101 AAP, cont'd

Step 6

Connect the destination device to the MLP 101 AAP line output connector. See Step 4 of this Quick Start Guide (page QS-2) for wiring instructions.

See below for a typical setup using the MLP 101 AAP preamplifier.



Typical connection setup

Quick Start Guide — MLP 101 D

To install and set up the **MLP 101 D**, follow these steps:

Step 1

Disconnect the MLP 101 D from any power source.

Step 2

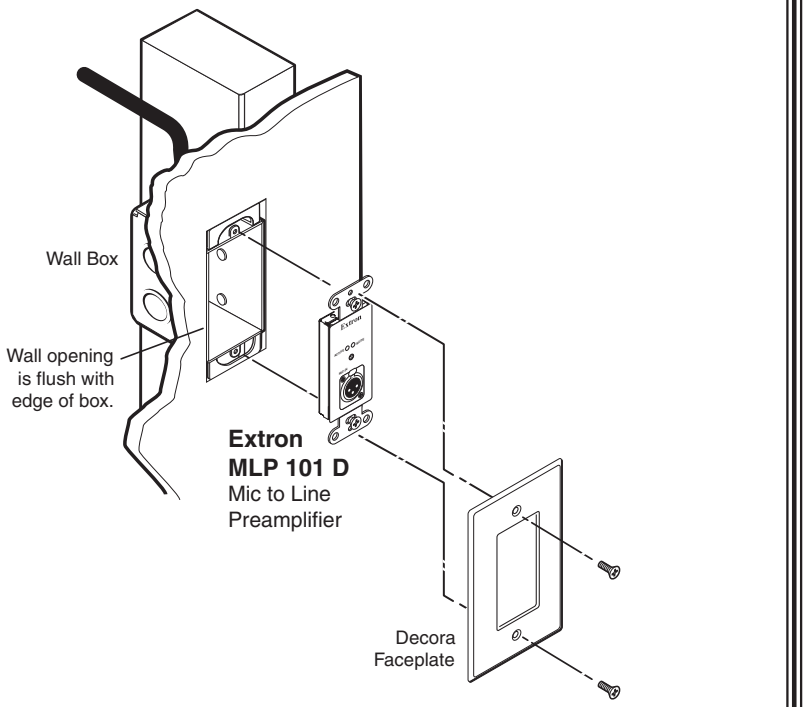
Set the Mic Gain, Low Cut, and Phantom power as needed. See "Adjusting the MLP 101 D" in chapter 4 for instructions.

Step 3

Place the MLP 101 D through the opening in the wall or furniture and into the wall box, as shown below. For detailed instructions, see "Mounting the MLP 101 D" in chapter 4. For dimensions and a template, see appendix B.

Step 4

Mount the MLP 101 D to the wall box with machine screws, and attach the Decora® wall plate, as shown in the illustration below.



Step 5

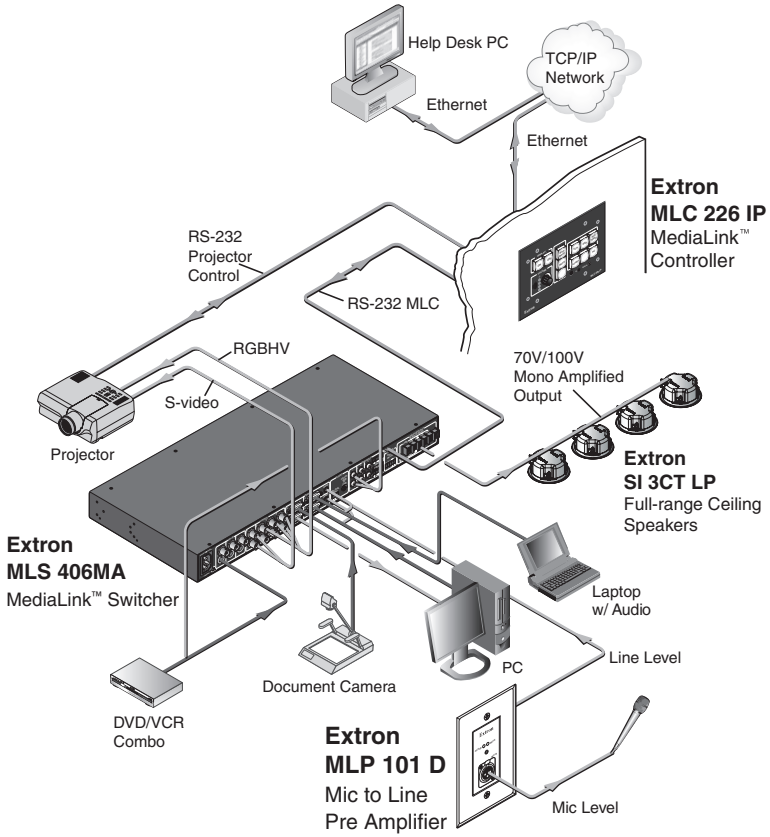
Connect the microphone to the MLP 101 D mic input. See Step 3 of this Quick Start Guide (page QS-1) for wiring instructions.

Quick Start Guide — MLP 101 D, cont'd

Step 6

Connect the destination device to the MLP 101 D Line Output connector. See Step 4 of this Quick Guide (page QS-2) for wiring instructions.

See below for a typical setup using the MLP 101 D preamplifier.



Typical connection setup

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68-992-01
Rev. **B**
08 06

Chapter One

Introduction

About this Manual

About the MLP 101, MLP 101 AAP, and MLP 101 D

Features

About this Manual

This manual contains information about the MLP 101, the MLP 101 AAP, and the MLP 101 D microphone to line preamplifiers and provides instructions on how to mount and operate these units.

About the MLP 101, MLP 101 AAP, and MLP 101 D

The Extron MLP 101, MLP 101 AAP, and MLP 101 D (the MLP 101 series) are high quality microphone to line level audio preamplifiers. These products can add microphone capability to most Extron audio and switcher systems.

The MLP 101 is rack-mountable, while the MLP 101 AAP is an AAP plate option for easy integration into Extron architectural products. The MLP 101 D works similarly to the other two units, but features a Decora® wall plate mounting option. Information on its installation and operation are found in chapter 4, "The MLP 101 D".

Each model features a recessed Mic Gain potentiometer that provides a 25 to 72 dB adjustment range, compensating for different microphone sensitivities. Each model also features an on/off switch for 48 volt phantom power and low cut filtering. Remote control is available through optional Extron VCM 100 AAP/MAAP panels, which control volume and muting.

Features

Compact size — The MLP 101 is housed in a 1U high, 1/8 rack width, 3" deep, metal enclosure, the MLP 101 AAP is housed in a two-space AAP plate; and the MLP 101 D is mounted into a wall plate. These three options allow for diverse applications.

Quick plug input and outputs — Connectors are captive screw or XLR (MLP 101 AAP and MLP 101 D only) for quick installation.

Gain control — Provides a wide gain adjustment range of 25 to 72 dB.

Switchable low cut filter — Provides low cut filter to remove wind and "table rumble" noise.

Switchable phantom power — Provides 48 volt phantom power for condenser microphones.

Volume and mute remote control — Each model can be remotely controlled for volume adjustment and muting via a rear panel Remote connector.

Flexible mounting options — The MLP 101 can be mounted on a rack, on a table, or under furniture. The MLP 101 AAP mounts into various Extron architectural products. The MLP 101 D is wall mountable using standard, off-the-shelf mounting accessories.

External international power supply — The autoswitchable, 12 VDC, 1 A external power supply provides worldwide power compatibility (Extron part #**70-380-01**).

Chapter Two

MLP 101

Rear Panel Features

Front Panel Features

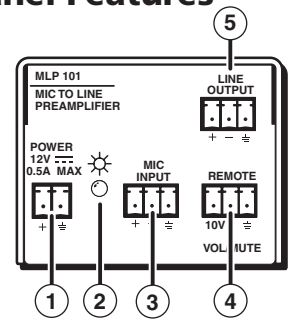
Mounting the MLP 101

Adjusting the MLP 101

Remote Control

The Extron MLP 101 is a high performance, microphone to line level audio preamplifier.

Rear Panel Features



Power input

(1) **Power** — Plug the external 12 VDC power supply into this 2-pin, 3.5 mm captive screw connector. The power supply is included with the unit.

NOTE *The power connector on the rear panel is orange; however, the plug for the power cord may be either orange or blue. Either color plug can be connected to the rear panel receptacle.*

To wire the connector, do the following:

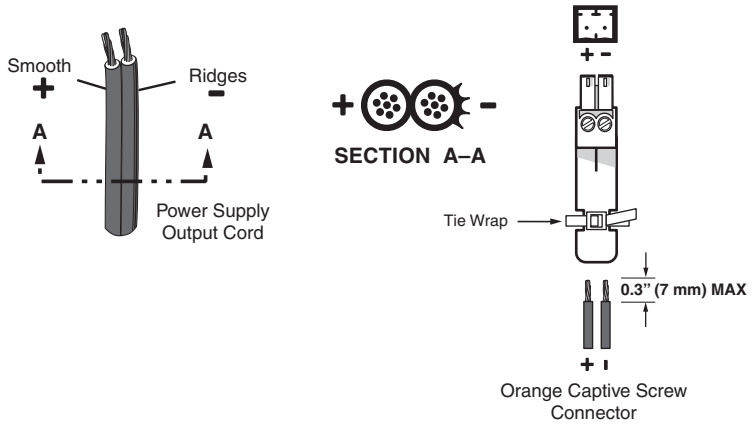
1. Cut the DC output cord to the length needed.
2. Strip the jacket to expose **0.2" (5 mm)** of the conductors for the **blue** captive screw plug, or **0.3" (7 mm)** for the **orange** plug.

WARNING *Exposing more than the amount of copper wire described above could allow the stripped wires to touch each other, causing a short circuit. This could result in the external DC power supply overheating and/or burning.*

NOTE *Stripping the wires to expose* **less** *than the recommended amount causes them to slide out of the connector too easily, even if they are tightly pinched by the captive screws.*

3. Slide the leads into the supplied captive screw plug and lock them, using an Extron Tweeker (small screwdriver).
4. Use the supplied tie-wrap to strap the power cord to the extended tail of the connector.
5. To verify the power cord's polarity before connecting it, plug in the power supply with no load and check the output with a voltmeter.

The figure below shows how to wire the connector.



NOTE *Your MLP 101 may have shipped with a blue captive screw plug. The blue connector does not have the extended tail or the included tie-wrap.*

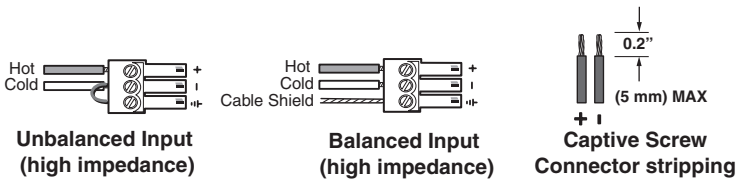
CAUTION *Do not tin the stripped power supply leads before installing the captive screw connector. Tinned wires are not as secure in the captive screw connectors and can be easily pulled out. They may also break after being bent several times.*

WARNING *The two power cord wires must be kept separate while the power supply is plugged in. Remove power before wiring.*

(2) **Power LED** — This LED lights green to indicate that the unit is receiving power.

Mic input (microphone level)

(3) **Mic Input** — A 3-pin, captive screw connector for a standard condenser microphone connection.



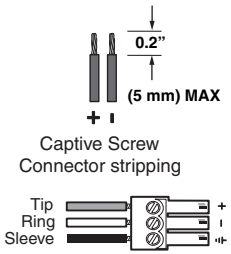
CAUTION *For unbalanced audio, ensure that the Phantom power switch is set to the "off" position.*

Remote connection

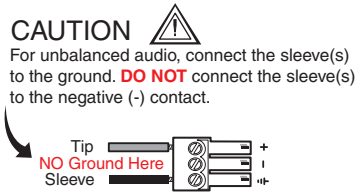
④ **Remote** — An optional 3-pin, captive screw connector allows a wall mounted audio controller or MediaLink product to remotely control volume and mute levels for the MLP 101 unit. See "Remote Control", later in this chapter, for more information.

Audio output (line level)

⑤ **Line Output** — A 3-pin, captive screw connector outputs to audio mixers, amps switchers, or other non-microphone audio equipment.

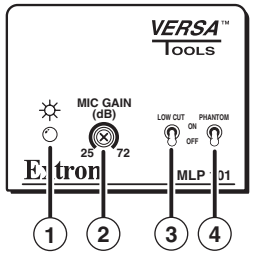


Balanced Output



Unbalanced Output (high impedance)

Front Panel Features



① **Power LED** — This LED lights green to indicate that the unit is receiving power.

② **Mic Gain** — A recessed, adjustable pot defines the amount of input signal (between 25 and 72 dB) allowed into the preamp.

③ **Low Cut filter switch** — Provides switchable low cut filtering to remove wind and "table rumble" noise.

④ **Phantom power switch** — Provides switchable 48 volt phantom power for condenser microphones.

Mounting the MLP 101

There are many optional accessories for mounting the MLP 101. They include the following:

Projector mounting options

- PMK 100 Mini Projector (part **#70-217-01**)
- PMK 300 Multi-Product Projector (part **#70-374-01**)
- PMK 350 Low Profile Multi-Product Projector (part **#70-563-02/03**)

Rack mounting options

- RSF 123 1U 3.5" Deep (part **#60-190-20**)
- RSB 123 1U 3.5" Deep Basic (part **#60-604-20**)
- RSU 126 1U 6" D Universal (part **#60-190-10**)
- RSB 126 6" Deep Basic (part **#60-604-10**)
- RSU 129 1U 9.5" Deep Universal (part **#60-190-01**)
- RSB 129 1U Basic (part **#60-604-01**)
- MBB 100 Back of Rack Mount (part **#70-367-01**)

Furniture mounting option

- MBU 123 Mini Under-Desk (part **#70-212-01**)

The MLP 101 can be set on a table, mounted on a rack shelf, or mounted under a desk or table. Following are detailed instructions for these mounting options.

Tabletop use

The MLP 101 comes with four self-adhesive rubber feet (not attached). For a tabletop installation, do the following:

1. Attach the rubber feet to the underside of the MLP 101 near the corners of the unit.
2. Place the MLP 101 unit in the desired location.

Rack installation

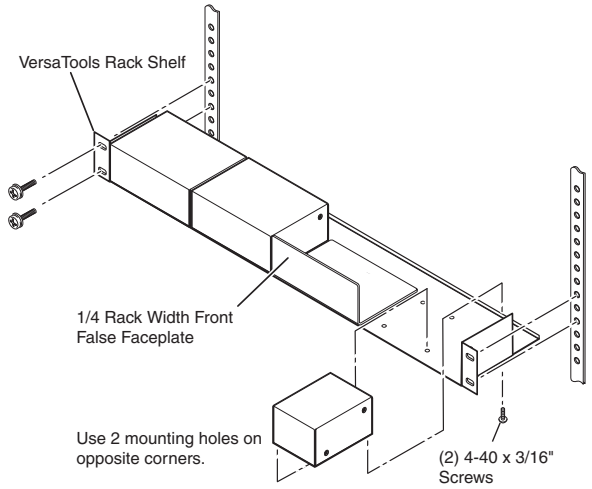
The MLP 101 can be rack mounted using either the VersaTools 19" 1U rack shelf (part #**60-190-20**), basic VersaTools rack shelf (part #**60-604-20**), a standard universal 1U rack shelf (part #**60-190-01**), or a 1U basic rack shelf (part #**60-604-01**).

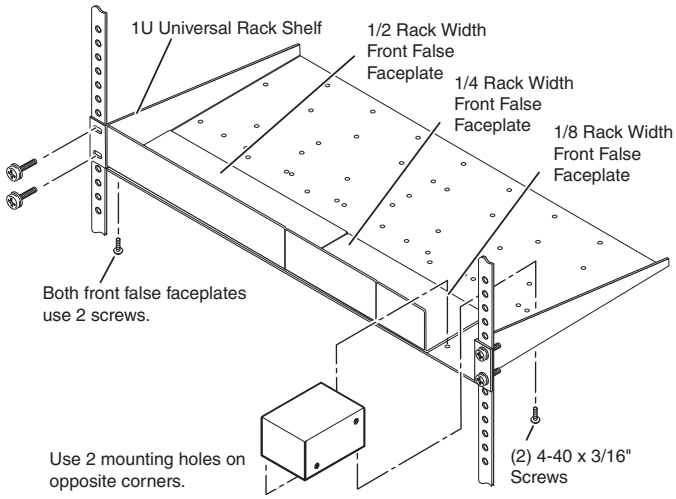
The figure below shows the VersaTools rack shelf, and the figure on the following page shows a standard rack shelf. On the standard rack shelf, there are eight mounting locations at the front of the shelf and eight at the rear of the shelf.

1. Remove the rubber feet from the unit, if they were previously installed.
2. Mount the unit on the rack shelf, using two 4-40 x 3/16" screws. These screws go into holes on the underside of the unit near the left-front and right-rear corners.

NOTE *Only products in the VersaTools or IP Link line can be mounted on a VersaTools rack shelf.*

3. Install blank panels (included with part #**60-190-xx**, optional with part #**60-604-xx**) or other units on the rack shelf.

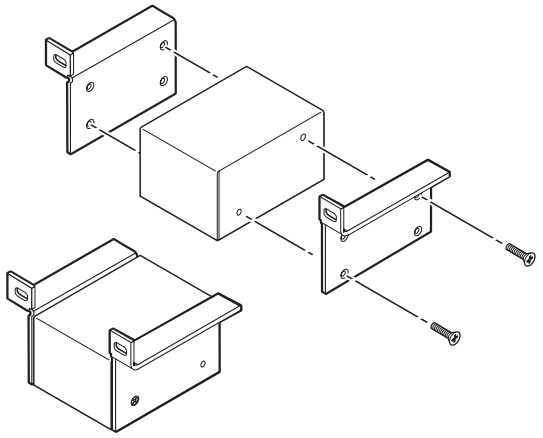



1U Universal Rack Shelf
1/2 Rack Width Front False Faceplate
1/4 Rack Width Front False Faceplate
1/8 Rack Width Front False Faceplate
Both front false faceplates use 2 screws.
Use 2 mounting holes on opposite corners.
(2) 4-40 x 3/16" Screws

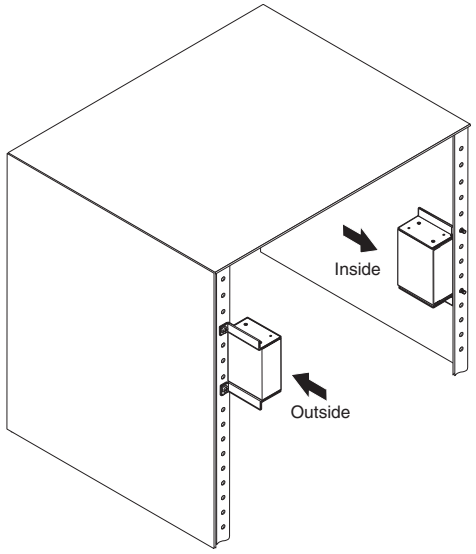
Back of the rack installation

The MLP 101 can be conveniently mounted on the rear of a rack by using the Extron MBB 100 Back of Rack Mounting Kit (part #**70-367-01**). This mounting option allows the MLP 101 to be vertically positioned.

1. Attach the two back of the rack mounting brackets to the sides of the MLP 101, using the four included mounting screws.



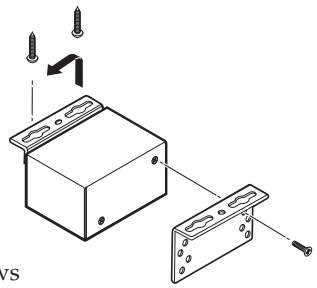
2. Mount the unit on the rack, using the two included rack screws. The MLP 101 can be vertically mounted facing in either direction, as shown in the following figure.



Furniture mounting

In addition to using the MLP 101 on a rack, you can mount it on furniture using the optional MBU Mini Under-Desk Mount Kit (part #**70-212-01**). To use this option, do the following:

1. Remove the rubber feet if they were previously installed.
2. Attach one of the mounting brackets to the MLP 101, as shown below.
   a. Remove the two machine screws from one side of the unit. Save these screws for future use.
   b. After lining up a bracket with the holes, attach the bracket using the longer machine screws provided.



   c. Repeat step **b** to attach the other bracket.
3. Attach the MLP 101 to the furniture.
   a. Hold the unit against the underside of the table or other furniture, and mark the locations for four screws (two screws per bracket) on the mounting surface.
   b. At each mark, drill a 3/32" (2 mm) diameter pilot hole approximately 0.25" (6 mm) deep in the mounting surface.
   c. Insert provided #8 wood screws into the four pilot holes. Tighten each screw into the mounting surface until just less than 0.25" (6 mm) of the screw protrudes.
   d. Align the bracket slots with the wood screws and place the unit against the mounting surface.
   e. Slide the unit either forward or backward until the screws are in contact with the edge of the bracket slots. Then, tighten each screw to secure the unit in place.

Adjusting the MLP 101

After the MLP 101 has been properly mounted and connected, do the following to adjust it:

1. If using a **condenser microphone**, flip the Phantom power switch to the "on" position.

   If using a **dynamic microphone**, flip the Phantom power switch to the "off" position.
2. When using the microphone for **voice** audio, flip the Low Cut switch to "on" to reduce wind and "table rumble" noise.

   When using the microphone for **music** audio, flip the Low Cut switch to "off" to preserve the optimum sound quality.
3. Set the Mic Gain pot by saying a few words into the microphone and adjusting for the maximum sound level that is free of distortion.

NOTE *If there is a remote control connection, unplug it while adjusting the Mic Gain pot. Replace the remote control when finished.*

If there is minimal distortion, but greater volume is required, turn the Mic Gain pot clockwise (towards the 75 dB mark) to increase the volume, but not past the point where distortion occurs.

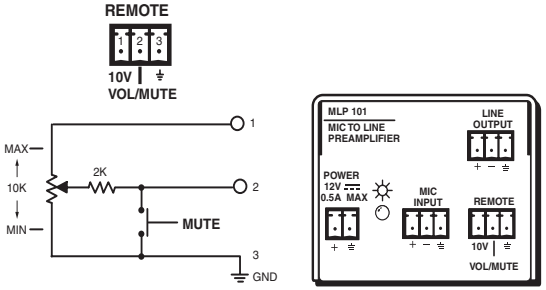
Remote Control

The wiring and control options described below pertain to all models in the MLP 101 series.

Remote connector wiring

As shown below, **Pin 1** is 10 VDC reference voltage. **Pin 2** is volume control DC voltage; range is 0 to 10 V, where 0 V is mute and 10 V provides maximum volume. **Pin 3** is ground.

NOTE *All nominal levels are at ±10%.*



Remote control options

The MLP 101 has three remote control options:

1. The Extron **VCM 100** volume/mute controller and **VC 50** volume controller use a 10k ohm potentiometer as the main method for controlling volume levels.

   The VCM 100 includes an illuminated Mute button and operates in sync with the MLP 101 AAP.

2. The Extron **MLA-VC10** converts RS-232 serial command to 0~10 volt variable DC for volume control.

3. Generic volume/mute controllers are standard 10k ohm potentiometers.

Chapter Three

MLP 101 AAP

Rear Panel Features

Front Panel Features

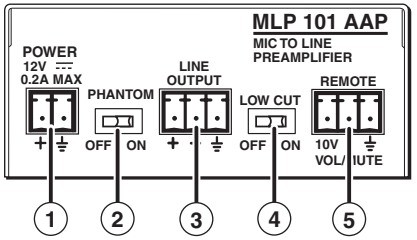
Adjusting the MLP 101 AAP

Mounting the MLP 101 AAP

Remote Control

The Extron MLP 101 AAP is a high performance microphone to line level audio preamplifier. The three models are two-space MLP 101 AAPs in black, white, and RAL 9010 (Eurowhite).

Rear Panel Features

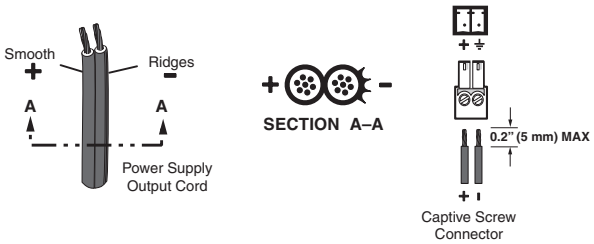


Power input

① **Power** — Plug the external 12 VDC power supply into this captive screw connector. The power supply is included with the unit.

To verify the polarity before connection, plug in the power supply with no load and check the output with a voltmeter.

CAUTION *When connecting the power supply, voltage polarity is extremely important. Applying power with incorrect voltage polarity could damage the power supply and the interface. Identify the power cord negative lead by the ridges on the side of the cord.*



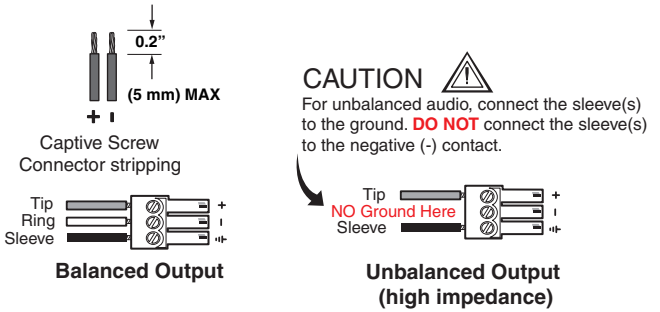
NOTE *Do not tin the stripped power supply leads before installing the captive screw connector. Tinned wires are not as secure in the captive screw connectors and could pull out.*

WARNING *The two power cord wires must be kept separate while the power supply is plugged in. Remove power before continuing.*

② **Phantom power switch** — Provides switchable 48 volt phantom power for condenser microphones.

Audio output (line level)

③ **Line Output** — A 3-pin, captive screw connector outputs to audio mixers, amps switchers, or other non-microphone audio equipment.

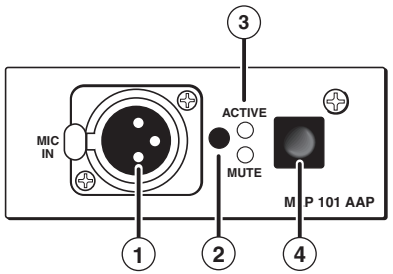


④ **Low Cut filter switch** — Provides low cut filtering to remove wind and "table rumble" noise.

Remote connection

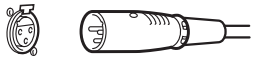
⑤ **Remote** — An optional 3-pin, captive screw connector allows a wall mounted audio controller or MediaLink product to remotely control volume and mute levels for the MLP 101 unit. See "Remote Control", later in this chapter, for more information.

Front Panel Features



① **XLR mic input** — Use an XLR connector or a standard microphone connection. See the following illustration and table for connector pin out information.

3-pin
Female



Balanced		Unbalanced	
Pin	Description	Pin	Description
1	External cable (sheild/ground)	1	Ground
2	Live ("hot" positive phase)	2	Signal
3	Return signal ("cold" negative phase)	3	Ground

② **Mic Gain** — A recessed, adjustable pot defines the amount of input signal (between 25 and 72 dB) allowed into the preamp.

This pot is covered by a plastic cap to avoid tampering. To adjust the pot, use a provided Extron Tweeker to remove the covering, make adjustments, then replace the cap.

③ **Active/Mute LEDs** — The active LED lights green to indicate active sound. The mute LED lights red to indicate mute.

④ **Mute button** — Toggles between active sound and mute (indicated by its LEDs). When used with an optional Extron VCM 100 controller, the two controllers are synchronized.

Adjusting the MLP 101 AAP

Most adjustment options for the MLP 101 AAP are located on its rear panel (see "Rear Panel Features" in this chapter for an illustration of each option). Therefore, you must perform these adjustments prior to final mounting into a wall or a piece of furniture.

To adjust the MLP 101 AAP, do the following:

1. If using a **condenser microphone**, flip the Phantom power switch to the "on" position.

   If using a **dynamic microphone**, flip the Phantom power switch to the "off" position.

2. When using the microphone for **voice** audio, flip the Low Cut switch to "on" to reduce wind and "table rumble" noise.

   When using the microphone for **music** audio, flip the Low Cut switch to "off" to preserve the optimum sound quality.

3. Set the Mic Gain pot by saying a few words into the microphone and adjusting for the maximum sound level that is free of distortion.

NOTE *If there is a remote control connection, unplug it while adjusting the Mic Gain pot. Replace the remote control when finished.*

4. If there is minimal distortion, but greater volume is required, turn the Mic Gain pot clockwise (towards the 75 dB mark) to increase the volume, but not past the point where distortion occurs.

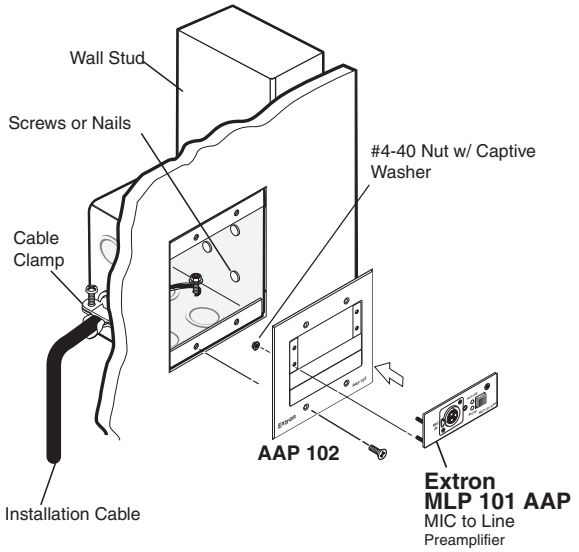
Mounting the MLP 101 AAP

The MLP 101 AAP must be attached to a device faceplate or AAP wall plate and then cabled before you can test and perform the final mount (installation into a wall or piece of furniture).

NOTE *Prior to final mounting, the MLP 101 AAP should be tested to verify that its connections and settings are correct.*

To mount the MLP 101 AAP into a device faceplate or AAP wall plate, do the following:

1. Before any cables are attached, insert the MLP 101 AAP's standoffs through the holes in the device's faceplate or AAP wall plate.
2. Secure all cables and connections into the rear connectors of the MLP 101 AAP.
3. Using the provided #4-40 nuts and captive washers, secure the preamplifier to the faceplate or wall plate, as shown below.



4. Repeat steps 1 through 3 to mount any other AAPs. Cover any openings in the faceplate with blank plates (provided).

5. If it was not done previously, adjust the MLP 101 AAP from its rear panel. See the previous section, "Adjusting the MLP 101 AAP" for detailed instructions.

6. Pretest the MLP 101 AAP before final mounting of the faceplate.

7. Perform the final mount by attaching the cabled device faceplate or AAP wall plate into a wall or piece of furniture. For detailed installation information, refer to the installation guide shipped with the faceplate.

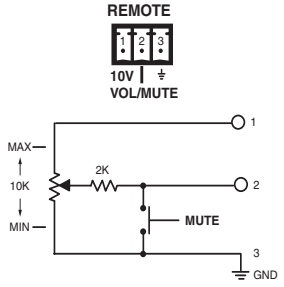
Remote Control

The wiring and control options described below pertain to all models in the MLP 101 series.

Remote connector wiring

Pin 1 is 10 VDC reference voltage. **Pin 2** is volume control DC voltage; range is 0 to 10 V, where 0 V is mute and 10 V provides maximum volume. **Pin 3** is ground.

NOTE *All nominal levels are at ±10%.*



Remote control options

The MLP 101 AAP has three remote control options:

1. The Extron **VCM 100** volume/mute controller and **VC 50** volume controller use a 10k ohm potentiometer as the main method for controlling volume levels.

   The VCM 100 includes an illuminated Mute button and operates in sync with the MLP 101 AAP.

2. The Extron **MLA-VC10** converts RS-232 serial command to 0~10 volt variable DC for volume control.

3. Generic volume/mute controllers are standard 10k ohm potentiometers.

4

Chapter Four

MLP 101 D

About the MLP 101 D

Rear Panel Features

Front Panel Features

Adjusting the MLP 101 D

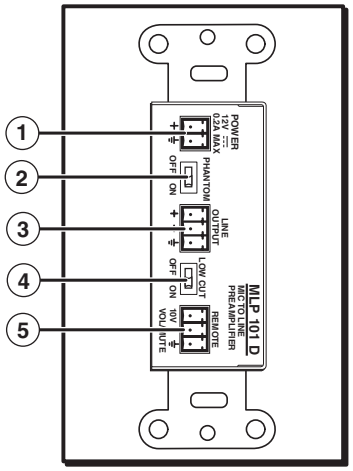
Mounting the MLP 101 D

Remote Control

About the MLP 101 D

The **Extron MLP 101 D** provides the same features as the other MLP 101 models in a convenient, Decora® style wall plate. Like the MLP 101 and MLP 101 AAP, this mic to line preamplifier can be remotely controlled via a VCM volume/mute control module. The MLP 101 D does not provide a mute button.

Rear Panel Features

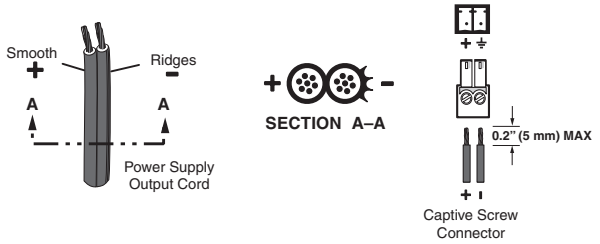


Power input

1. **Power** — Plug the external 12 VDC power supply into this captive screw connector. The power supply is included with the unit.

   To verify the polarity before connection, plug in the power supply with no load and check the output with a voltmeter.

   CAUTION *When connecting the power supply, voltage polarity is extremely important. Applying power with incorrect voltage polarity could damage the power supply and the interface. Identify the power cord negative lead by the ridges on the side of the cord.*



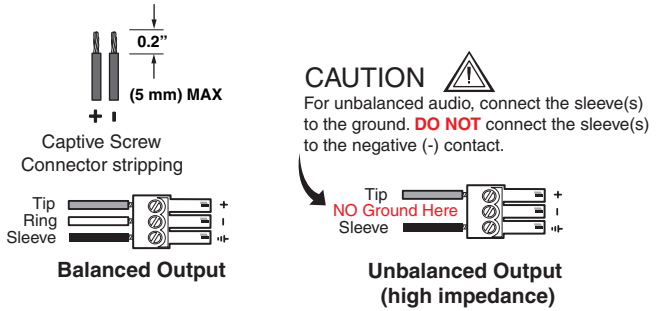
NOTE *Do not tin the stripped power supply leads before installing the captive screw connector. Tinned wires are not as secure in the captive screw connectors and could pull out.*

WARNING *The two power cord wires must be kept separate while the power supply is plugged in. Remove power before continuing.*

Audio output (line level)

2. **Phantom power switch** — Provides switchable 48 volt phantom power for condenser microphones.

3. **Line Output** — A 3-pin, captive screw connector outputs to audio mixers, amps switchers, or other non-microphone audio equipment.

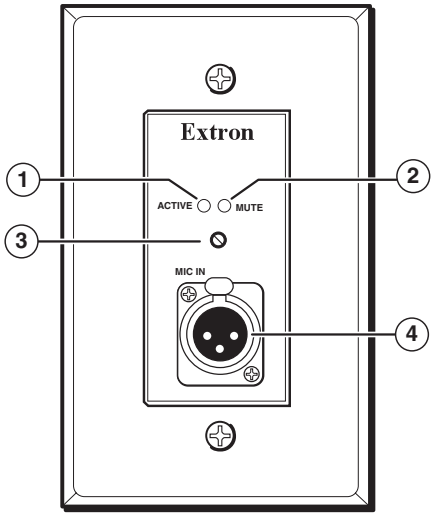


4. **Low Cut filter switch** — Provides low cut filtering to remove wind and "table rumble" noise.

Remote connection

⑤ **Remote** — An optional 3-pin, captive screw connector allows a wall mounted audio controller or MediaLink product to remotely control volume and mute levels for the MLP 101 unit. See "Remote Control", later in this chapter, for more information.

Front Panel Features



① **Active LED** — This LED lights green to indicate that the unit is receiving power.

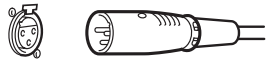
② **Mute LED** — This LED lights red to indicate mute.

③ **Mic Gain** — A recessed, adjustable pot defines the amount of input signal (between 25 and 72 dB) allowed into the preamp.

This pot is covered by a plastic cap to avoid tampering. To adjust the pot, use a provided Extron Tweeker to remove the covering, make adjustments, then replace the cap.

④ **XLR mic input** — An XLR connector for a standard microphone connection

3-pin Female



Balanced		Unbalanced	
Pin	Description	Pin	Description
1	External cable (sheild/ground)	1	Ground
2	Live ("hot" positive phase)	2	Signal
3	Return signal ("cold" negative phase)	3	Ground

Adjusting the MLP 101 D

Most adjustment options for the MLP 101 D are located on its rear panel (see "Rear Panel Features" in this chapter for details). Therefore, you must perform these adjustments prior to final mounting into a wall.

To adjust the MLP 101 D, do the following:

1. If using a **condenser microphone**, flip the Phantom power switch to the "on" position.

   If using a **dynamic microphone**, flip the Phantom power switch to the "off" position.

2. When using the microphone for **voice** audio, flip the Low Cut switch to "on" to reduce wind and "table rumble" noise.

   When using the microphone for **music** audio, flip the Low Cut switch to "off" to preserve the optimum sound quality.

3. Set the Mic Gain pot by saying a few words into the microphone and adjusting for the maximum sound level that is free of distortion.

NOTE *If there is a remote control connection, unplug it while adjusting the Mic Gain pot. Replace the remote control when finished.*

If there is minimal distortion, but greater volume is required, turn the Mic Gain pot clockwise (towards the 75 dB mark) to increase the volume, but not past the point where distortion occurs.

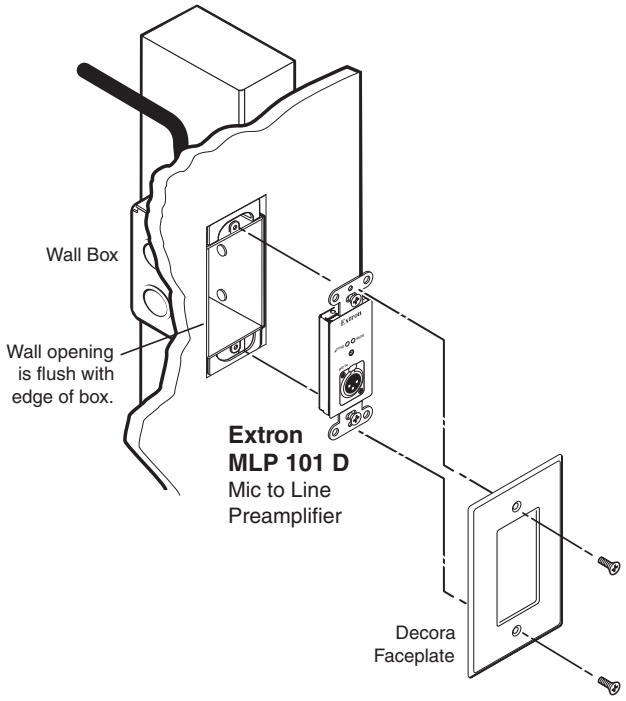
Mounting the MLP 101 D

The MLP 101 D provides the same features as the other MLP 101 models in a convenient, Decora style wall plate.

NOTE *Prior to final mounting, the MLP 101 D should be tested to verify that its connections and settings are correct.*

To mount the MLP 101 D into a Decora faceplate, do the following:

1. Secure all cables and connections onto the MLP 101 D.
2. If it was not done previously, adjust the MLP 101 D from its rear panel. See the previous section, "Adjusting the MLP 101 D", for detailed instructions.
3. Place the MLP 101 D through the opening in the wall or furniture and into the wall box. Take care not to damage the output cables, which fit behind the preamplifier at the back of the wall box.
4. Attach the Decora wall plate to the MLP 101 D, as shown below.



5. Pretest the MLP 101 D before performing the final mount in step 6.
6. Perform the final mount by attaching the cabled MLP 101 D and Decora faceplate into a wall. For detailed installation information, refer to the installation guide shipped with the Decora faceplate.

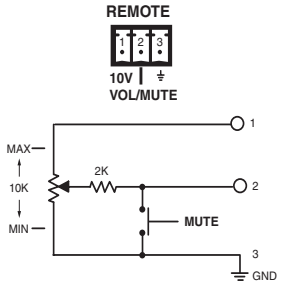
Remote Control

The wiring and control options described below pertain to all models in the MLP 101 series.

Remote connector wiring

Pin 1 is 10 VDC reference voltage. **Pin 2** is volume control DC voltage; range is 0 to 10 V, where 0 V is mute and 10 V provides maximum volume. **Pin 3** is ground.

NOTE *All nominal levels are at ±10%.*



Remote control options

The MLP 101 D has three remote control options:

1. The Extron **VCM 100** volume/mute controller and **VC 50** volume controller use a 10k ohm potentiometer as the main method for controlling volume levels.

   The VCM 100 includes an illuminated Mute button and operates in sync with the MLP 101 AAP.
2. The Extron **MLA-VC10** converts RS-232 serial command to 0~10 volt variable DC for volume control.
3. Generic volume/mute controllers are standard 10k ohm potentiometers.

5

Chapter Five

Architectural Installation

Installation Instructions

Preparing the Site and Installing the Wall Box

Installation Instructions

Two versions of the MLP 101 series, the **MLP 101 AAP** and **MLP 101 D**, can be mounted into furniture, a wall, or an Ackermann floor box. For specific mounting instructions for each model, see "Mounting the MLP 101 AAP" in chapter 4, and "Mounting the MLP 101 D" in chapter 5.

Unless otherwise noted, both units (the MLP 101 AAP and the MLP 101 D) are referred to as the "MLP 101" in the following instructions.

CAUTION *The MLP 101 must be installed into an Underwriters Laboratories (UL) approved electrical wall box. The box is not included with the MLP 101; the installer is responsible for obtaining and installing the box.*

Preparing the Site and Installing the Wall Box

Choose a location that allows cable runs without interference. Allow enough depth for both the wall box and the cables. You may need to install the cables into the wall, furniture, or conduits before installing the mic driver.

- The **MLP 101 AAP** can be installed into an HSA 400 Series surface access enclosure, or into a two-gang or four-gang wall box. Its faceplate accepts up to four single height Extron Architectural Adapter Plates (AAPs).
- The **MLP 101 D** can be installed into a standard or compact one-gang electrical wall box using the included Decora® style wall plate.

The installation must conform to national and local electrical codes and to the MLP 101's size requirements. Dimensional drawings and a template for the MLP 101 D are provided in appendix B of this manual.

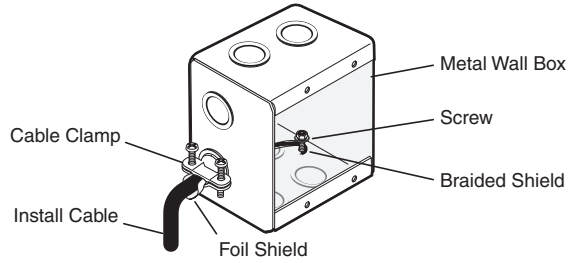
1. For the **MLP 101 D only**, see the template in appendix B. A template is not required for the MLP 101 AAP.

NOTE *The template is not shown at full size. Pay attention to the measurements shown on the template.*

2. Mark the guidelines for the opening on the wall or furniture.

- If the MLP 101 will be installed in a wall box, place the box against the installation surface and draw a line on it around the outside of the box.
- If the MLP 101 will be installed without a wall box (using mud rings or fastening it directly to the wall or furniture), measure and mark the surface for the cutout area indicated in the template.

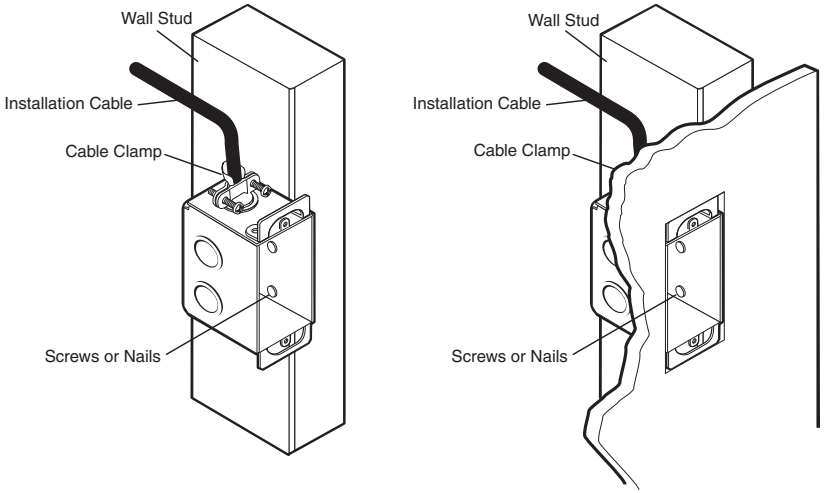
3. Cut out the material from the marked area.
4. Check the opening size by inserting the wall box (if used) or the MLP 101 (if no box is used) into the opening. The box and preamplifier should fit easily into the opening. Enlarge or smooth the edges of the opening if needed.
5. Feed cables through the wall box punch-out holes, and secure them with cable clamps to provide strain relief.
6. Exposed cable shields (braids or foil) are potential sources of short circuits. Trim back and/or insulate shields with heat shrink.



WARNING *To prevent short circuits, cut back the outer foil shield to the point where the cable exits the cable clamp. Both braided and foil shields should be connected to an equipment ground at the other end of the cable, as shown above.*

7. Insert the wall box into the opening, and attach it to the wall, stud, or furniture.

- If the **MLP 101 AAP** or **MLP 101 D** are being installed in a two- or four-gang AAP plate, attach the wall box to the wall stud or furniture with nails or screws, leaving the front edge flush with the outer wall or furniture surface. See the illustration below, which applies to one-, two-, three-, and four-gang wall boxes.



- If attaching the wall box to wood, use four #8 or #10 screws or 10-penny nails. A minimum of 1/2 inch (1.3 cm) of screw threads must penetrate the wood.
- If attaching the wall box to metal studs or furniture, use four #8 or #10 self-tapping sheet metal screws or machine bolts with matching nuts.

Appendix A

Specifications, Part Numbers, and Accessories

Specifications

Included Parts

Optional Accessories

Specifications

Audio

Gain	Adjustable, +25 dB to + 72 dB
Frequency response	20 Hz to 20 kHz, ±0.1 dB
THD + Noise (with a 10 Hz to 80 kHz bandwidth filter)	0.03% when input is -48 dBV and output is +4 dBu. 0.14% when input is -60 dBV and output is -10 dBV.
S/N	92 dB at maximum output (unweighted, with a 10 Hz to 80 kHz bandwidth filter)
CMRR	>70 dB @ 20 Hz to 20 kHz
Low cut filter	75 Hz (18 dB per octave)
Equivalent input noise	<126 dBV (unweighted, with a 10 Hz to 80 kHz bandwidth filter)

Audio input

Number/signal type	1 mono, balanced
Connectors	
MLP 101	(1) 3.5 mm captive screw connector, 3 pole
MLP 101 AAP, MLP 101 D	(1) female 3-pin XLR
Impedance	2k ohm balanced
Nominal level	-60 dBV or -48 dBV
Maximum level	-1.5 dBu, (balanced) at 1% THD+N

NOTE *0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV 2 dBu*

Audio output

Number/signal type	1 mono, balanced
Connectors	(1) 3.5 mm captive screw connector, 3 pole
Impedance	<150 ohms balanced
Maximum level (Hi-Z)	>+25 dBu, balanced at 1% THD+N
Maximum level (600 ohm)	>+20 dBu, balanced at 1% THD+N

Control/remote — preamp

Contact closure	(1) 3.5 mm captive screw connector, 3 pole
Contact closure pin configurations	1 = 10 VDC reference voltage 2 = variable voltage input for remote volume control/muting 3 = ground
Extron remote key pad control	(1) 3.5 mm captive screw connector, 3 pole

General

External power supply	100 VAC to 240 VAC, 50/60 Hz, external, autoswitchable; to 12 VDC, 1 A, regulated
Power input requirements	12 VDC, 0.3 A
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Rack mount	
MLP 101	Yes, with optional 1U rack shelf, part #60-190-01 or 60-604-01; or VersaTools® rack shelf, part #60-190-20 or 60-604-20; or back of the rack mount kit, 70-367-01. It is also furniture-mountable with optional under-desk mounting kit #70-212-01, or it can be attached to a projector mount with optional kit #70-217-01.
MLP 101 AAP	Yes, with optional faceplate or frame
MLP 101 D	No, but wall or furniture mountable in a Decora-style opening
Enclosure type	Metal
Enclosure dimensions	
MLP 101	1.7″ H x 2.2″ W x 3.0″ D (1U high, one-eighth rack wide) 4.3 cm H x 5.6 cm W x 7.6 cm D (Depth excludes connectors.)
MLP 101 AAP	
Faceplate	1.4″ H x 3.5″ W x 0.1″ D (3.6 cm H x 8.9 cm W x 0.3 cm D) (double space high AAP plate)
Device	1.1″ H x 2.75″ W x 1.8″ D (2.8 cm H x 7.0 cm W x 4.6 cm D) (Depth excludes connectors.)
MLP 101 D	
Faceplate	2.6″ H* x 1.3″ W x 0.1″ D (6.6 cm H* x 3.3 cm W x 0.3 cm D) (Fits the opening in a 1 gang Decora faceplate. *Height is 3.8″ [9.7 cm] including mounting tabs.)
Device	2.75″ H x 1.1″ W x 1.8″ D (7.0 cm H x 2.8 cm W x 4.6 cm D) (Depth excludes connectors.)
Product weight	0.3 lbs (0.1 kg)

Shipping weight	2 lbs (1 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Listings	UL, CUL
Compliances	CE, FCC Class A, VCCI, AS/NZS, ICES
MTBF	30,000 hours
Warranty	3 years parts and labor

NOTE *All nominal levels are at ±10%.*

NOTE *Specifications are subject to change without notice.*

Included Parts

These items are included with each **MLP 101** unit:

Included parts	Replacement part number
MLP 101 Microphone to Line Preamplifier	60-718-10
Power supply: universal 12 VDC, 1.0 A	70-055-01
Three 3-pin, captive screw connectors	
One 2-pin, captive screw connector	
Tweeker (small screwdriver)	
Rubber feet (unattached)	
User's manual	

These items are included with each **MLP 101 AAP** unit:

Included parts	Replacement part number
MLP 101 AAP Microphone to Line Preamplifier (one of the following three):	
Black *or*	60-718-11
White *or*	60-718-21
RAL 9010 (Eurowhite)	60-718-51
Power supply: universal 12 VDC, 1.0 A	70-055-01
Two 3-pin, captive screw connectors	
One 2-pin, captive screw connector	
Tweeker (small screwdriver)	
User's manual	

These items are included with each **MLP 101 D** unit:

Included parts	Replacement part number
MLP 101 D Microphone to Line Preamplifier (one of the following two):	
Black *or*	60-822-12
White *or*	60-822-22
Power supply: universal 12 VDC, 1.0 A	70-055-01
Decora wall plate	
Two 3-pin, captive screw connectors	
One 2-pin, captive screw connector	
One white gain adjustment opening plug	
Tweeker (small screwdriver)	
User's manual	

Optional Accessories

Accessories	Part numbers
PMK 100 Mini Projector	70-217-01
PMK 300 Multi-Product Projector	70-374-01
PMK 350 Low Profile Multi-Product Projector	70-563-02/03
RSF 123 1U 3.5″ Deep	60-190-20
RSB 123 1U 3.5″ Deep Basic	60-604-20
RSU 126 1U 6″ D Universal	60-190-10
RSB 126 6″ Deep Basic	60-604-10
RSU 129 1U 9.5″ Deep Universal	60-190-01
RSB 129 1U Basic	60-604-01
MBB 100 Back of Rack Mount	70-367-01
MBU 123 Mini Under-Desk	70-212-01
Power supply kit, 12 VDC	70-055-01
AAP 102 panel (gray) (MLP 101 AAP only)	60-300-01
AAP 102 panel (black) (MLP 101 AAP only)	60-300-02
AAP 102 panel (white) (MLP 101 AAP only)	60-300-03

Appendix B

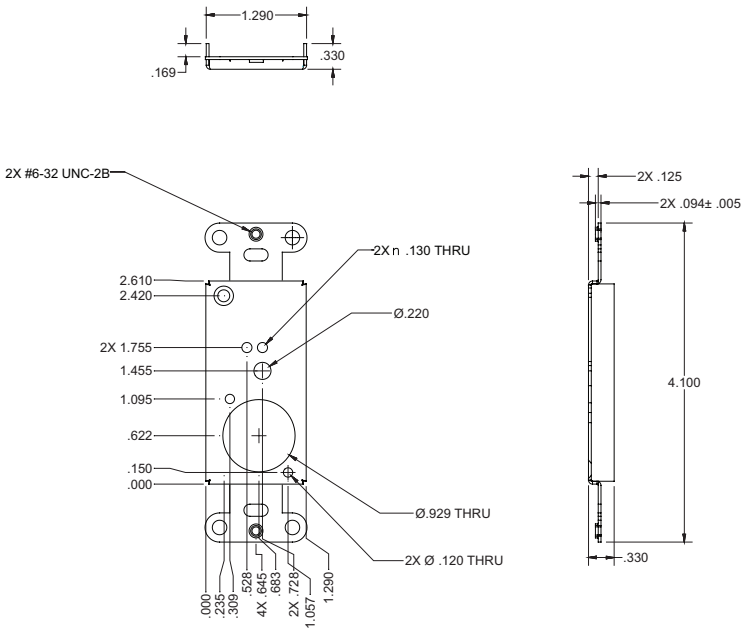
Dimensions and Template for the MLP 101 D

Dimensions

Template

Dimensions

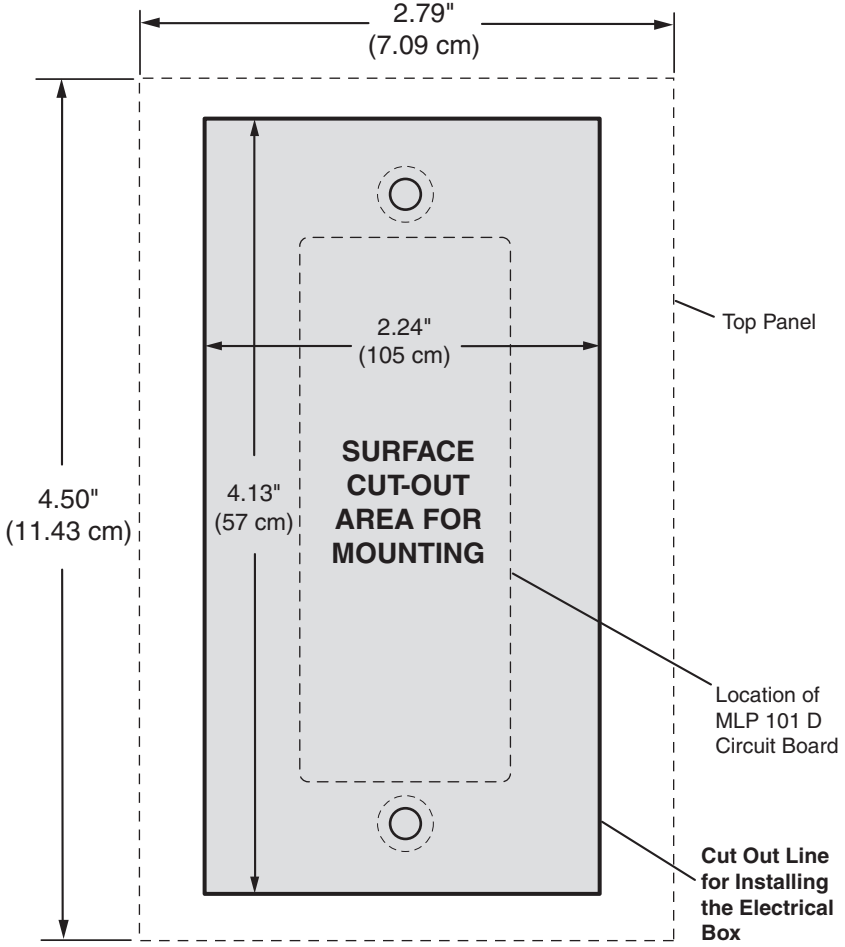
NOTE *Always check and go by the dimensions given in this appendix.*



Template

Cut-Out Template for the Extron

MLP 101 D



FULL SIZE